



ENERGY STAR CFL Criteria and Third Party Testing and Verification Program Update

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Overview



- Why?
- CFL Third Party Testing and Verification Program
 - Administrator duties and responsibilities
 - Product selection
 - Tests
 - Administrator structure
- Residential Light Fixture Quality Assurance
- ENERGY STAR CFL Criteria Revisions

Meeting with NVLAP



- DOE to meet with NVLAP
- Discuss development of a request for interest
- Consensus on fee schedule

Duties and Responsibilities of the Third Party Testing Administrator



1) Management of the Participation of NVLAP Accredited Testing Laboratories:

- Identifies which laboratory will conduct the testing for each product.
- Develops a rotating testing schedule, to include all laboratories participating in the program, taking into account each facility's testing capacity.

Duties and Responsibilities of the Third Party Testing Administrator



2) Product Nomination Process:

- Administrator will work with DOE/EPA, ENERGY STAR utilities, manufacturers, states, and efficiency program sponsors to identify and establish an ongoing testing cycle.
- Administrator will assist testing facilities in procuring lamps. Sample products will be collected from across the country from a variety of retail, e-tail, or commercial distribution channels.

Duties and Responsibilities of the Third Party Testing Administrator



3) Management of the Third Party Testing Procedure:

- Administrator will notify the Partners which laboratory will conduct its tests.
- Each participating laboratory will provide a quotation to the specific ENERGY STAR CFL partner. This quotation will include:
 - the overall testing costs (which will include costs for the purchase of the product samples and shipment to the laboratory)
 - confidentiality clause that automatically permits the test laboratory to release the data to the Administrator and to the manufacturer
- Partners will send payment directly to the testing facility and will assist in identifying distribution channels to purchase products from.
- The testing facility will distribute 20% of the testing cost to the Administrator for management and administrative costs. The testing laboratory will be responsible for product procurement and delivery to their testing facility.

Duties and Responsibilities of the Third Party Testing Administrator



3) Management of the Third Party Testing Procedure, cont.:

- Administrator will deliver the final individual reports to the individual manufacturers.
- The Administrator will also deliver the individual and aggregated summary test reports to DOE/EPA to review and identify which products met the ENERGY STAR criteria. DOE will notify partners of product qualification or disqualification.
- Summary reports can include overall pass/fail statistics, pass/fail statistics by product type, statistical scatter plots of measured performance test data, statistical analysis of mean, median, and year by year or round by round trend data.

Duties and Responsibilities of the Third Party Testing Administrator



4) Verification of Qualified Products:

D&R International will review the following parameters to assure the most accurate information is being used to manage the program:

- Which products are manufactured and which are private labeled
- Verification of Where Products are Sold/Distributed
- Product Disqualifications or Discontinuations
- Partner Contact Information

Product Selection and Nomination Process



Product Selection & Nominations:

- The program will test 20% of the total number of current qualified bulbs during a calendar year
 - *Approximately 10% will be selected via a random generator.*
 - *The other 10% will be nominated by DOE/EPA, utilities, manufacturers, states, or efficiency program sponsors.*
- The product testing pool will be comprised of both OEM qualified and private labeled CFLs
 - *This will allow the testing of the maximum number of products per year.*
 - *The inclusion of private labeled products will allow testing qualified products that may not be marketed or sold within North America by the OEM.*
- Nomination Guidelines
 - **Product Nomination Limits:** *Participating organizations will be limited to nominating no more than 2 products per manufacturer per testing cycle.*
 - **Rationale for Product Nomination:** *Participating organizations will need to supply evidence on the poor performance of the product, which can include test data, consumer complaints, product returns, etc.*

Product Selection and Nomination Process



Product Procurement:

- A maximum of six products per CFL partner may be tested within a calendar year.
 - *If a manufacturer has at least three products selected for testing (out of the maximum six) fail to meet all qualification requirements, then it will automatically initiate mandatory testing for all of the manufacturer's qualified products.*
- The partner will be required to compile and submit a list of retail, e-tail, electrical or lighting distributors, and lighting showrooms that carry their products.
- Product Procurement Protocol
 - *Will require products to be purchased from at least 3 different geographic locations.*
 - *Will be comprised of store selection, shipment of products, and collection of lot numbers, date codes, and location of purchase (store #, city, state)*
 - *At least two, and preferably up to four, different date or lot codes will make up the samples of bulbs per model tested.*

Tests to be Conducted



All tests listed below will be conducted as per the qualification stipulations of the current ENERGY STAR Program Requirements for CFLs.

These tests will form the basis for product qualification verification:

- *Initial Efficacy*
- *Rapid Cycle Stress Test*
- *Correlated Color Temperature (CCT)*
- *Color Rendering Index (CRI)*
- *Run-up Time*
- *Start Time*
- *1,000 Hour Lumen Maintenance*
- *Lumen Maintenance at 40% of rated lifetime*
- *Interim Life (number of bulb surviving at 40% of Rated Lifetime)*



ENERGY STAR Third Party Testing Program Structure

Establishment of Third Party Testing System



An independent corporation has been selected as the means for the Third Party Testing System for several fundamental reasons, including:

- *It will allow for fair and open discussion regarding the procedures and protocols used in pursuing a third-party testing system designed to further the prerequisites of the ENERGY STAR CFL Program.*
- *It will allow for fair and open assessment of third party test data and recommendations to the U.S. Department of Energy regarding such data.*
- *It will serve as an effective firewall for proprietary data because under federal corporate law the handling and ownership of the third party test data can be determined by the Corporation's Board of Directors.*
- *It will serve as an effective fire-wall for proprietary data sent to the U.S. Department of Energy and/or the U.S. Environmental Protection Agency because under the Freedom of Information Act (FOIA) 5 U.S.C. § 552, as amended by Public Law No. 104-231, 110 Stat. 3048, the Department of Energy and Environmental Protection Agency are exempted from FOIA requests for trade secrets and commercial or financial information obtained from a person and are privileged or confidential.*

Establishment of Third Party Testing System



Legal Structure of Third Party Testing System

The legal structure (which has not been formally named) is proposed as:

- *a 501(c)(3) non-profit scientific and educational corporation, under the rules set for by the U.S. Internal Revenue Service and a C-Corporation in the State of Maryland.*
- *such corporations are deemed viable and appropriate under the IRS code because they are private non-profit corporations acting in lieu of government.*
- *incorporation signatories to include one or more manufacturers, one or more utilities, states or efficiency program sponsors.*

Establishment of Third Party Testing System



Legal Structure of Third Party Testing System

Timing and Initial Funding:

- *Incorporation to occur in April/May 2005 with operations to begin no later than October 2005.*
- *Initial funding for incorporation from the Federal government and perhaps from utilities, states or efficiency program sponsors.*
- *Sustainable funding to emanate from revenues from third party testing and pledges from efficiency providers.*

Establishment of Third Party Testing System



“Third Party” Corporation will be:

- Governed by a Board of Directors or Steering Committee
 - *Such Board or Steering Committee shall be representative of both manufacturer and non-manufacturer stakeholders.*
- Comprised of members that by virtue of their involvement in the ENERGY STAR CFL Program are deemed stakeholders, such definition to be defined as part of the corporations Articles of Incorporation and By-Laws.
- Funded by Stakeholder contributions through subscription fees paid for by non-manufacturer stakeholders and by fees paid by manufacturers for the required third party testing.
- Managed using funds derived from stakeholder subscription fees and a small percentage of testing fees.

ENERGY STAR Criteria for CFLs - Revision Ideas

ENERGY STAR Criteria for CFLs - Revision Ideas



- The current criteria has been in effect for over a year (went into effect on January 1, 2004).
- Within the last criteria revision in 2003, there were a number of requirements that were not addressed or changed and would be targeted during the next revision. Some of these topics include:
 - Requalification of products
 - Quality Assurance/Control
 - Correlated Color Temperature (CCT)
 - Run-up Time
 - Reflector Testing
 - Rapid Cycle Stress Test
 - Candelabra-based CFLs

ENERGY STAR Criteria for CFLs - Revision Ideas



ENERGY STAR CFL Requalification Procedure

To requalify a product, partners must follow the current ENERGY STAR CFL qualification testing procedure. D&R International will track and inform partners when their qualified products must begin testing for requalification. The 36-month requalification clock will not start until the end-of-life testing of a qualified product is completed. Specifically, partners must:

1. Submit their product for requalification testing at an accredited National Voluntary Laboratory Accreditation Program (NVLAP) testing facility within 45 days of notification from D&R International.
2. Submit the test qualification reports and product packaging to D&R International for review and approval. Products that meet the ENERGY STAR criteria will continue to be recognized as ENERGY STAR qualified. Products that fail to meet the criteria will be immediately disqualified as ENERGY STAR.

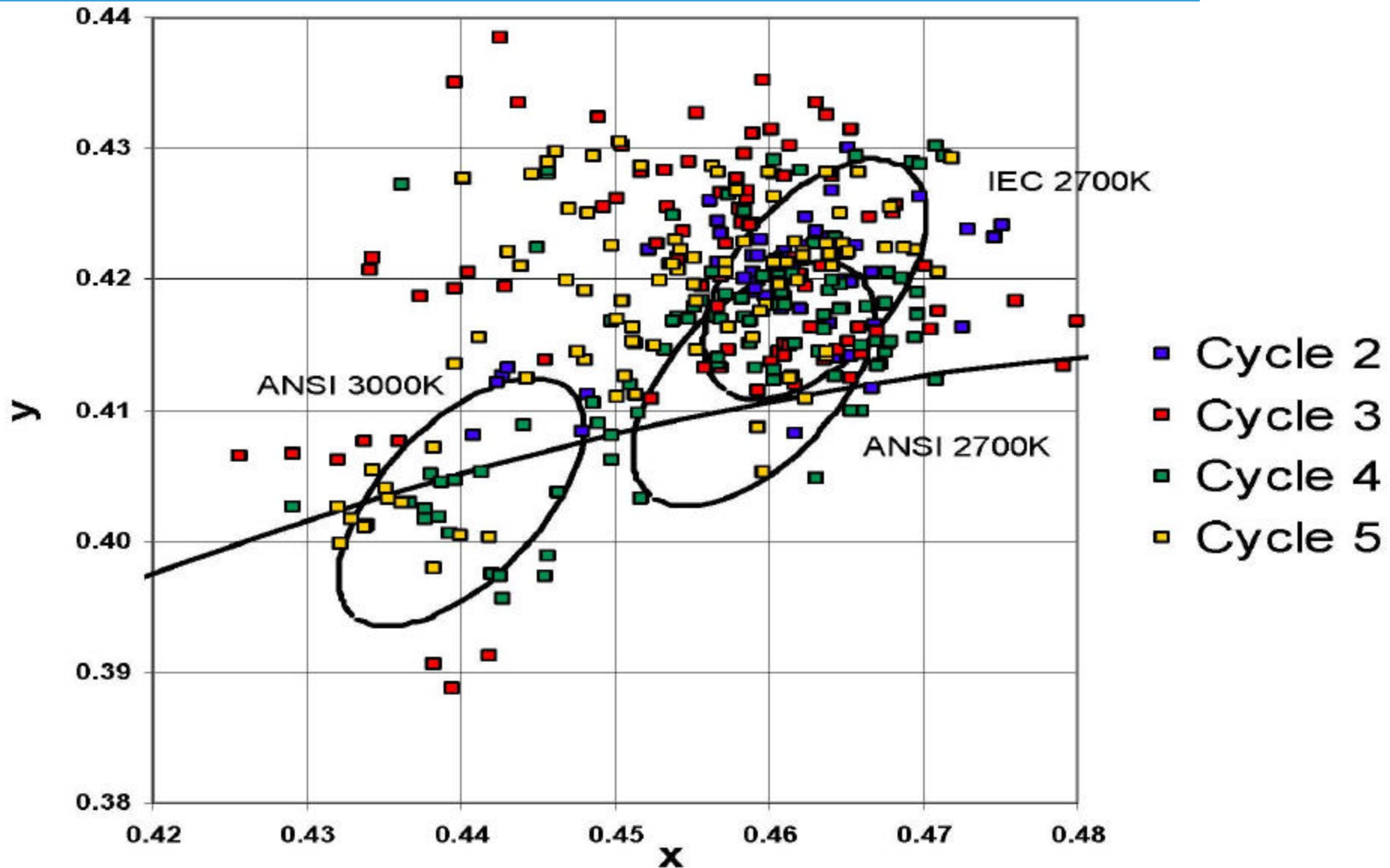
ENERGY STAR Criteria for CFLs - Revision Ideas



Manufacturer Quality Assurance and Control

Original Equipment Manufacturers (OEM) partners will be asked to provide a manufacturing process control plan as compliance documentation on measures they are taking to assure their ENERGY STAR qualified CFLs and those products they sell to private labelers meet program requirements.

ENERGY STAR Criteria for CFLs - Revision Ideas



ENERGY STAR Criteria for CFLs - Revision Ideas



Correlated Color Temperature

To provide quality control and consistency between ENERGY STAR qualified CFLs, DOE proposes to establish a CCT/chromaticity measurement requirement that must fall within a 7-step Mac Adam color ellipse associated with the designated (manufacturer declared) target color.

This requirement will correlate with the ENERGY STAR residential light fixtures specification.

Lamps will be required to designate a correlated color temperature (CCT) of one of the following: 2700K, 3000K, 3500K, 4100K, 5000K, or 6500K.

ENERGY STAR Criteria for CFLs - Revision Ideas



Run-up Time

The current requirement is stated as:

Average of 10 samples tested must be less than 3.0 minutes per ANSI C78.5, clause 3.11 and 4.8

Product qualification data shows that the majority of bare CFLs are achieving this requirement under 1.0 minute, but covered and reflector products still require more time.

Suggested run-up revision will be:

Bare CFL products: *Average of 10 samples tested must be less than 1.0 minute per ANSI C78.5, clause 3.11 and 4.8*

Covered and Reflector CFL products: *Average of 10 samples tested must be less than 3.0 minute per ANSI C78.5, clause 3.11 and 4.8*

ENERGY STAR Criteria for CFLs - Revision Ideas



CFL Reflector Testing

Current results of mandatory ENERGY STAR qualified CFL reflector testing are being performed in open air environment:

- 45 out of 63 reflector products completed the 1,000-hour lumen maintenance requirement
 - *18 products passed the requirement (40.0%)*
 - *7 products passed the requirement using the 3% tolerance (15.6%)*
 - *20 products failed the requirement (44.4%)*
 - *18 products are still testing towards 1,000 hours*

44.4% failure rate appears to demonstrate the need to test products within an “in-situ” environment so it proves it can withstand use within insulated, recessed can light fixtures.

ENERGY STAR Criteria for CFLs - Revision Ideas



Rapid Cycle Stress Test

Many partners have expressed concern over keeping this testing requirement in a future criteria. Manufacturers have stated the following reasons to exclude this test:

- Does not provide accurate analysis of the long-term performance
- Manufacturers build the products to meet the rapid cycle stress test, not the average rated lifetime test.

However, PEARL testing has shown passing rapid cycle stress test is a good indicator the product will also meet lumen maintenance and interim lifetime tests.

ENERGY STAR Criteria for CFLs - Revision Ideas



Candelabra-based CFLs

Many partners have asked to incorporate candelabra-based CFLs into the criteria. With the small-base design, there are concerns products would encounter failure problems caused by heat build-up.

Some partners have expressed that their candelabra-based CFL products can meet the current criteria.

DOE requests partners submit any product test reports to either identify potential criteria levels or demonstrate they can meet the current criteria.

Comments and Thoughts



- Accepting comments on Third Party Testing Program through April 25th
- Your thoughts on ENERGY STAR CFL Criteria revision are welcome

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